

**IN THE CLAIMS:**

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40. (Newly Presented) A frequency synthesizer comprising:  
a voltage controlled oscillator including a configurable tail current source having a number of switched unit current sources;  
a phase locked loop to control a frequency of an oscillating signal of the voltage controlled oscillator; and  
an amplitude calibration unit to calibrate the configurable tail current source when the phase locked loop is disabled to achieve a desired amplitude for the oscillating signal,

the amplitude calibration unit detecting a voltage amplitude of the voltage controlled oscillator and adjusting the configurable tail current source by activating a subset of the switched unit current sources to achieve the desired voltage amplitude,

wherein the activating involves de-activating switched unit current sources in discrete steps until the voltage amplitude falls below a target, the target being variably selectable on the basis of a current mode of operation.

41. (Newly Presented) The frequency synthesizer of claim 40, wherein the voltage controlled oscillator includes additional configurable circuitry that affects the frequency of the voltage controlled oscillator, the frequency synthesizer further comprising a frequency calibration unit to adjust the additional configurable circuitry of the voltage controlled oscillator so as to calibrate the frequency of the oscillator while the phase locked loop is disabled.

42 (Newly Presented) An RF integrated circuit adapted for coupling to an external voltage controlled oscillator comprising:

a configurable tail current source having a number of switched unit current sources;

a phase locked loop to control a frequency of an oscillating signal of the voltage controlled oscillator; and

an amplitude calibration unit to calibrate the configurable tail current source when the phase locked loop is disabled to achieve a desired amplitude for the oscillating signal,

the amplitude calibration unit detecting a voltage amplitude of the voltage controlled oscillator and adjusting the configurable tail current source by activating a subset of the switched unit current sources to achieve the desired voltage amplitude,

wherein the activating involves de-activating switched unit current sources in discrete steps until the voltage amplitude falls below a target, the target being variably selectable on the basis of a current mode of operation.

43. (Newly Presented) The RF integrated circuit of claim 42, further comprising:

additional configurable circuitry to adjust the frequency of the voltage controlled oscillator; and

a frequency calibration unit to adjust the additional configurable circuitry of the voltage controlled oscillator so as to calibrate the frequency of the oscillator while the phase locked loop is disabled.

44. (Newly Presented) An RF integrated circuit adapted for coupling to an external voltage controlled oscillator including a configurable tail current source having a number of switched unit current sources, the RF integrated circuit comprising:

a phase locked loop to control a frequency of an oscillating signal of the voltage controlled oscillator; and

an amplitude calibration unit to calibrate the configurable tail current source when the phase locked loop is disabled to achieve a desired amplitude for the oscillating signal,

the amplitude calibration unit detecting a voltage amplitude of the voltage controlled oscillator and adjusting the configurable tail current source by activating a subset of the switched unit current sources to achieve the desired voltage amplitude,

wherein the activating involves de-activating switched unit current sources in discrete steps until the voltage amplitude falls below a target, the target being variably selectable on the basis of a current mode of operation.

45. (Newly Presented) The RF integrated circuit of claim 42, further comprising:

additional configurable circuitry to adjust the frequency of the voltage controlled oscillator; and

a frequency calibration unit to adjust the additional configurable circuitry of the voltage controlled oscillator so as to calibrate the frequency of the oscillator while the phase locked loop is disabled.